

REMARKS/ARGUMENTS

Claims 14, 21, 25 and 29 have been amended. Claims 14 and 17 to 29 are pending in the application, of which claims 14, 21, 25 and 29 are the independent claims. Reconsideration and further examination are respectfully requested.

Independent claim 14 has been amended to recite that the plurality of subchannel signals are transmitted by the single remote station, and that the generated power control messages are to be used by the single remote station to independently adjust the transmit powers of more than one of the plurality of subchannel signals. Independent claims 21, 25 and 29 have been similarly amended. Support for the amendment can be found, for example, on p. 6, l. 20 to p. 7, l. 25 of the originally-filed application. No new matter is believed to have been added.

Examiner Interview

Applicants thank the Examiner for the courtesies extended to Applicants' representatives in the telephonic interview conducted on August 17, 2010, in which the rejection of independent claim 14 was discussed. During the interview, Applicants' representatives argued that the Walton reference does not teach a plurality of subchannel signals that are transmitted by a single remote station. The Examiner agreed that this is not disclosed in the Walton reference, but indicated that he interpreted claim 14 to be broad enough to include a plurality of subchannel signals that are transmitted by multiple remote stations.

Applicants have amended independent claim 14 to make clear that the plurality of subchannel signals are transmitted by the single remote station. Independent claims 21, 25 and 29 have been similarly amended.

Claim Rejections – 35 USC § 103

Claims 14 and 17-29 were rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 5,621,723 to Walton et al. ("the '723 patent") further in view of U.S. Patent No. 5,832,387 Bae et al. ("Bae") and further in view of U.S. Patent No. 5,930,706 to Raith ("Raith"). Reconsideration and withdrawal of these rejections are respectfully requested.

Independent claim 14 is directed to a method for wireless communications. The method comprises receiving, by an apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals, wherein the plurality of subchannel signals are

transmitted by the single remote station. The method also comprises comparing a frame error rate of each of said subchannel signals with a frame error rate threshold, and generating power control messages, based on the comparison, to be used by the single remote station to independently adjust transmit powers of more than one of said plurality of subchannel signals to different levels.

The '723 patent does not teach or suggest at least the feature of receiving, by an apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals, wherein the plurality of subchannel signals are transmitted by the single remote station, as recited in claim 14.

According to the Declaration of Walton and Ketchum submitted with the previous response, “[t]he '723 patent describes a multiple access network employing multiple channels, each channel associated with a fixed data rate. Each of the channels is available for remote stations in the network to use. A single remote station selects ONE of the available channels to use (based on the data rate that the remote station elects to employ) and transmits on the selected channel. The remaining channels are available for the other remote stations to use.” This is fully consistent with the explicit text of the '723 patent, which discloses that “the mobile may select the reverse packet channel corresponding the maximum data rate which the link can support.” (emphasis added). See col. 3, ll. 27-31 of the '723 patent.

Thus, a single remote station in the '723 patent determines a data rate that it wishes to employ, selects ONE of the available channels based on the determined data rate and transmits on the selected ONE channel. Consequently, the '723 patent does not teach the feature of receiving, by an apparatus, from a single remote station a reverse link signal that comprises a plurality of subchannel signals, wherein the plurality of subchannel signals are transmitted by the single remote station, as recited in claim 14. While multiple channels may be transmitted by multiple remote stations in the '723 patent (one channel per remote station), the '723 patent does not teach or suggest multiple channels that are transmitted by a single remote station.

Because the '723 patent fails to teach a plurality of subchannels that are transmitted by a single remote station, the '723 patent necessarily fails to teach the additional feature of generating control messages to be used by the single remote station to independently adjust transmit powers of more than one of the plurality of subchannels. At most, the base station in the '723 patent may generate separate control messages for multiple remote stations, in which

each control message is to be used by one of the remote stations to adjust the transmit power of the one channel selected by the remote station.

Neither Bae nor Raith are seen to remedy the foregoing deficiencies of the '723 patent for at least the reasons set forth below.

Bae is directed to a power allocation apparatus for a multicarrier transmission system, in which data is transmitted on a transmission channel comprising subchannels having different frequency bands. Bae, col. 1, ll. 7-11, and col. 4, ll. 57-61. The multicarrier transmission system of Bae is used to transmit data for multiple subscribers over a wired line, for example, a copper wired line in an asymmetric digital subscriber line (ADSL) system. Bae, col. 2, ll. 19-39. Bae is not directed to a CDMA system, in which a base station receives a reverse link signal from a remote station.

The purpose of the power allocation apparatus of Bae is to allocate power to the different subchannels in a manner that compensates for efficiency losses of the multicarrier transmission system caused by frequency selective interference. Bae, col. 7, ll. 4-13 and col. 7, l. 66 to col. 8, l. 4 and Fig. 9. Because the subchannels have different frequency bands, the frequency selective interference impacts the signal-to-noise ratios (SNRs) of the subchannels differently. Bae, Fig. 10B and col. 7, ll. 20-24. The power allocation apparatus of Bae compensates the multi-carrier transmission system for frequency selective interference by initially assigning power to subchannels of different frequency bands in proportion to calculated SNRs for the subchannels (Fig. 10B), limiting the power for subchannels within frequency band f_1 to power limit P_1 (Fig. 11A), reassigning remaining power to the other subchannels (Fig. 11B), and limiting the power for subchannels within frequency band f_2 to power limit P_2 (Fig. 11C). Bae, Figs. 10B-11C and col. 7, ll. 30-56. The power limits are dependant on the frequency bands of the subchannels.

Bae does not teach or suggest a base station receiving from a single remote station a reverse link signal comprising a plurality of subchannel signals, wherein the plurality of subchannel signals are transmitted by the single remote station, and therefore fails to cure the same deficiencies of the '723 patent. By contrast, Bae discloses a multicarrier transmission system that transmits different frequency-band subchannels for multiple subscribers over a wired line. Bae, col. 2, ll. 19-39.

Further, Applicants submit that, contrary to the Examiner's contentions, it would not have been obvious to incorporate the concept of independently adjusting more than one

subchannel of Bae into the system of the '723 patent for improved performance. See page 3 of the Final Office Action. As discussed above, Bae teaches that independently adjusting the power of subchannels improves performance by compensating for frequency selective fading of different frequency bands. Since the CDMA system of the '723 patent does not use different frequency bands, and therefore does not suffer from the frequency selective fading of Bae, one skilled in the art would have no reason to expect that incorporating the concept of adjusting more than one subchannel of Bae into the CDMA system of the '723 patent would lead to improved performance of the CDMA system of the '723 patent.

In response to similar arguments made by Applicants in the previous response, the Examiner states that “[t]he examiner respectfully disagrees that applicant argue that because Bae is allocated power to different subchannel in a different manner is relevant because examiner is only bringing in the concept of independent adjustment.” See page 11 of the Final Office Action. Applicants respectfully disagree and submit that the manner in which the independent adjustment is used in Bae is relevant. This is because the Examiner contends that one skilled in the art would have been motivated to combine Bae with the '723 patent to improve performance. Bae specifically teaches that its independent adjustment improves performance by compensating for frequency selective fading of different frequency bands. The Examiner has not provided any independent rationale for why one skilled in the art would have expected that combining the concept of independent adjustment of Bae with the CDMA system of the '723 patent would lead to improved performance. The Supreme Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006), stated that “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 412, 82 USPQ2d at 1396.

Raith, which was cited by the Examiner for its alleged disclosure of the power control message being based on a frame error rate, fails to remedy the above deficiencies of the '723 patent and Bae.

For at least the reasons above, Applicants believe that claim 14 is allowable over the applied references and respectfully request that the rejection of claim 14 be withdrawn.

Independent claims 21, 25 and 29 includes features similar to those of claim 14, and are believed to also be allowable over the applied references for at least the reasons given for claim 14.

The other claims currently under consideration in the application are dependent from the independent claims discussed above and therefore are believed to be allowable over the applied references for at least the same reasons. Because each dependent claims is deemed to define an addition aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

Application No. 09/804,621
Response dated August 18, 2010
Reply to Office Action of May 19, 2010

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated August 18, 2010

By: /Dang M. Vo/

:

Dang M. Vo, Reg. No. 45,183
(858) 845-2116

QUALCOMM Incorporated
Attn: Patent Department
5775 Morehouse Drive
San Diego, California 92121-1714
Telephone: (858) 658-5787
Facsimile: (858) 658-2502